

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A carbon monoxide selective oxidizing catalyst, comprising:

a carrier consisting essentially of ferrierite, the carrier comprising pores having a pore diameter in a range of from 0.55 nanometers (nm) to 0.65 nanometers (nm);
and

a metal component supported on the carrier and which includes ~~one of~~
~~platinum (Pt) alone and~~ platinum (Pt) and at least one type of transition metal, wherein

when the carbon monoxide selective oxidizing catalyst receives a supply of a hydrogen-rich gas containing carbon monoxide, the carbon monoxide selective oxidizing catalyst promotes a carbon monoxide selective oxidizing reaction that oxidizes the carbon monoxide by giving the carbon monoxide priority over hydrogen; and wherein

~~the a maximum allowable pore diameter of the carrier ranges from 0.55 to is~~
~~0.65 nanometers (nm)-(nm); and the transition metal is at least one type of metal selected~~
~~from the group consisting of cobalt (Co), manganese (Mn), chromium (Cr), and iridium (Ir).~~

2. (Currently Amended) A carbon monoxide selective oxidizing catalyst according to claim 1, wherein the transition metal is at least one type of metal selected from the group consisting of ~~iron (Fe), nickel (Ni),~~ cobalt (Co), and manganese (Mn), ~~copper (Cu), ruthenium (Ru), chromium (Cr), palladium (Pd), rhodium (Rh), and iridium (Ir).~~

3-5. (Canceled)

6. (Original) A carbon monoxide selective oxidizing catalyst according to claim 1, wherein the carbon monoxide selective oxidizing catalyst is subjected to a reduction

processing before being used in order to promote the carbon monoxide selective oxidizing reaction after the metal component has been supported on the carrier.

7. (Original) A carbon monoxide selective oxidizing catalyst according to claim 6, wherein the reduction processing is performed at a temperature higher than a temperature of the hydrogen-rich gas used for the carbon monoxide selective oxidizing reaction.

8. (Original) A carbon monoxide selective oxidizing catalyst according to claim 6, wherein the reduction processing is performed at 150 to 370°C.

9. (Currently Amended) A carbon monoxide concentration reduction apparatus, comprising:

a hydrogen-rich gas supply that supplies the hydrogen-rich gas;

an oxygen supply that supplies oxygen used for oxidizing the carbon monoxide;

~~the~~ a carbon monoxide selective oxidizing catalyst according to claim 1 comprising

a carrier consisting essentially of ferrierite, the carrier comprising pores having a pore diameter in a range of from 0.55 nanometers (nm) to 0.65 nanometers (nm); and

a metal component supported on the carrier and which includes one of platinum (Pt) alone and platinum (Pt) and at least one type of transition metal, wherein

when the carbon monoxide selective oxidizing catalyst receives a supply of a hydrogen-rich gas containing carbon monoxide, the carbon monoxide selective oxidizing catalyst promotes a carbon monoxide selective oxidizing reaction that oxidizes the carbon monoxide by giving the carbon monoxide priority over hydrogen; and wherein

a maximum allowable pore diameter of the carrier is 0.65 nanometers (nm);
and

a carbon monoxide selective oxidizing reactor that includes the carbon monoxide selective oxidizing catalyst and receives a supply of the hydrogen-rich gas and the oxygen from the hydrogen-rich gas supply and the oxygen supply, respectively, to selectively oxidize carbon monoxide contained in the hydrogen-rich gas through the carbon monoxide selective oxidizing reaction, wherein the carbon monoxide concentration reduction apparatus oxidizes the carbon monoxide contained in the hydrogen-rich gas, thereby reducing a carbon monoxide concentration in the hydrogen-rich gas.

10. (Original) A fuel cell system provided with a fuel cell that receives a supply of a fuel gas containing hydrogen and an oxidizing gas containing oxygen, and that obtains an electromotive force through an electrochemical reaction, the fuel cell system comprising:

a fuel gas supply that supplies the fuel cell with the fuel gas, wherein the fuel gas supply is provided with the carbon monoxide concentration reduction apparatus according to claim 9, and supplies the fuel cell with a hydrogen-rich gas whose carbon monoxide concentration has been reduced using the carbon monoxide concentration reduction apparatus as the fuel gas.

11. (Currently Amended) A carbon monoxide selective oxidizing catalyst, comprising:

a carrier whose maximum allowable pore diameter ~~ranges from 0.55 to~~ is 0.65 nanometers (nm), the carrier comprising pores having a pore diameter in a range of from 0.55 nanometers (nm) to 0.65 nanometers (nm); and

a metal component supported on the carrier and which includes ~~one of platinum (Pt) alone and~~ platinum (Pt) and at least one type of transition metal, wherein when the carbon monoxide selective oxidizing catalyst receives a supply of a hydrogen-rich gas containing carbon monoxide, the carbon monoxide selective oxidizing catalyst promotes a carbon monoxide selective oxidizing reaction that oxidizes the carbon monoxide by giving

the carbon monoxide priority over hydrogen, and wherein the transition metal is at least one type of metal selected from the group consisting of cobalt (Co), manganese (Mn), chromium (Cr), and iridium (Ir).

12. (Original) A carbon monoxide selective oxidizing catalyst according to claim 11, wherein the carrier is a solid acid.

13. (Currently Amended) A carbon monoxide selective oxidizing catalyst according to claim 11, wherein the transition metal is at least one type of metal selected from the group consisting of ~~iron (Fe), nickel (Ni),~~ cobalt (Co), and manganese (Mn), ~~copper (Cu), ruthenium (Ru), chromium (Cr), palladium (Pd), rhodium (Rh), and iridium (Ir).~~

14-16. (Canceled)

17. (Original) A carbon monoxide selective oxidizing catalyst according to claim 11, wherein the carbon monoxide selective oxidizing catalyst is subjected to a reduction processing before being used in order to promote the carbon monoxide selective oxidizing reaction after the metal component has been supported on the carrier.

18. (Original) A carbon monoxide selective oxidizing catalyst according to claim 17, wherein the reduction processing is performed at a temperature higher than a temperature of the hydrogen-rich gas used for the carbon monoxide selective oxidizing reaction.

19. (Original) A carbon monoxide selective oxidizing catalyst according to claim 17, wherein the reduction processing is performed at 150 to 370°C.

20. (Original) A carbon monoxide concentration reduction apparatus, comprising:
a hydrogen-rich gas supply that supplies the hydrogen-rich gas;
an oxygen supply that supplies oxygen used for oxidizing the carbon monoxide;
the carbon monoxide selective oxidizing catalyst according to claim 11; and

a carbon monoxide selective oxidizing reactor that includes the carbon monoxide selective oxidizing catalyst and receives a supply of the hydrogen-rich gas and the oxygen from the hydrogen-rich gas supply and the oxygen supply, respectively, to selectively oxidize carbon monoxide contained in the hydrogen-rich gas through the carbon monoxide selective oxidizing reaction, wherein:

the carbon monoxide concentration reduction apparatus oxidizes the carbon monoxide contained in the hydrogen-rich gas, thereby reducing a carbon monoxide concentration in the hydrogen-rich gas.

21. (Original) A fuel cell system provided with a fuel cell that receives a supply of a fuel gas containing hydrogen and an oxidizing gas containing oxygen, and that obtains an electromotive force through an electrochemical reaction, the fuel cell system comprising:

a fuel gas supply that supplies the fuel cell with the fuel gas, wherein the fuel gas supply is provided with the carbon monoxide concentration reduction apparatus according to claim 20, and supplies the fuel cell with a hydrogen-rich gas whose carbon monoxide concentration has been reduced using the carbon monoxide concentration reduction apparatus as the fuel gas.

22. (Currently Amended) A carbon monoxide selective oxidizing catalyst that receives a supply of a hydrogen-rich gas containing carbon monoxide and promotes a carbon monoxide selective oxidizing reaction that oxidizes the carbon monoxide by giving the carbon monoxide priority over hydrogen, wherein

the catalyst is provided with a metal component including ~~one of platinum (Pt) alone and~~ platinum and at least one type of transition metal, and achieves a carbon monoxide reduction rate of at least 90% when the carbon monoxide selective oxidizing reaction is performed under following conditions (a) through (c):

(a) contents of components other than hydrogen in the hydrogen-rich gas are as follows: a carbon monoxide concentration is about 5000 ppm; a carbon dioxide concentration is about 25%; and an oxygen content is such that a molar ratio value between oxygen atoms and carbon monoxide molecules ($[O]/[CO]$) is 1;

(b) a space velocity is about $22000h^{-1}$ when the hydrogen-rich gas is supplied onto the carbon monoxide selective oxidizing catalyst; and

(c) a reaction temperature is $130^{\circ}C$; and wherein

the carbon monoxide selective oxidizing catalyst is supported on a carrier having a maximum allowable pore diameter ranging from 0.55 to of 0.65 nanometers (nm)-(nm), the carrier comprising pores having a pore diameter in a range of from 0.55 nanometers (nm) to 0.65 nanometers (nm); and wherein the transition metal is at least one type of metal selected from the group consisting of cobalt (Co), manganese (Mn), chromium (Cr), and iridium (Ir).

23. (Original) A carbon monoxide selective oxidizing catalyst according to claim 22, wherein the carbon monoxide reduction rate of 98% or higher is achieved when the carbon monoxide selective oxidizing reaction is performed under the conditions (a) through (c).

24. (Withdrawn-Currently Amended) A method of manufacturing a carbon monoxide selective oxidizing catalyst that receives a supply of a hydrogen-rich gas containing carbon monoxide and promotes a carbon monoxide selective oxidizing reaction that oxidizes the carbon monoxide by giving the carbon monoxide priority over hydrogen, comprising:

preparing a carrier consisting essentially of ferrierite, the carrier comprising pores having a pore diameter in a range of from 0.55 nanometers (nm) to 0.65 nanometers (nm); and

supporting on the prepared carrier, a metal component which includes ~~one of~~
~~platinum (Pt) alone and~~ platinum and at least one type of transition metal; and wherein
the a maximum allowable pore diameter of the carrier ranges from 0.55 to is
0.65 nanometers (nm); and wherein the transition metal is at least one type of metal selected
from the group consisting of cobalt (Co), manganese (Mn), chromium (Cr), and iridium (Ir).

25. (Withdrawn-Currently Amended) A manufacturing method for a carbon monoxide selective oxidizing catalyst according to claim 24, wherein the transition metal is at least one type of metal selected from the group consisting of ~~iron (Fe), nickel (Ni), cobalt (Co), and~~ manganese (Mn), ~~copper (Cu), ruthenium (Ru), chromium (Cr), palladium (Pd), rhodium (Rh), and iridium (Ir).~~

26-28. (Canceled)

29. (Withdrawn) A manufacturing method for a carbon monoxide selective oxidizing catalyst according to claim 24, further comprising:

performing reduction processing on the carbon monoxide selective oxidizing catalyst after the metal component has been supported on the carrier.

30. (Withdrawn) A manufacturing method for a carbon monoxide selective oxidizing catalyst according to claim 29, wherein the reduction processing is performed at a temperature higher than a temperature of the hydrogen-rich gas used for the carbon monoxide selective oxidizing reaction.

31. (Withdrawn) A manufacturing method for a carbon monoxide selective oxidizing catalyst according to claim 29, wherein the reduction processing is performed at 150 to 370°C.

32. (Withdrawn-Currently Amended) A method of manufacturing a carbon monoxide selective oxidizing catalyst that receives a supply of a hydrogen-rich gas containing

carbon monoxide and promotes a carbon monoxide selective oxidizing reaction that oxidizes the carbon monoxide by giving the carbon monoxide priority over hydrogen, comprising:

preparing a carrier whose maximum allowable pore diameter ~~ranges from 0.55 to is~~ 0.65 nanometers (nm), the carrier comprising pores having a pore diameter in a range of from 0.55 nanometers (nm) to 0.65 nanometers (nm); and

supporting on the prepared carrier, a metal component that includes ~~one of platinum (Pt) alone and~~ platinum and at least one type of transition metal; wherein the transition metal is at least one type of metal selected from the group consisting of cobalt (Co), manganese (Mn), chromium (Cr), and iridium (Ir).

33. (Withdrawn) A manufacturing method for a carbon monoxide selective oxidizing catalyst according to claim 32, wherein the carrier is a solid acid.

34. (Withdrawn-Currently Amended) A manufacturing method for a carbon monoxide selective oxidizing catalyst according to claim 32, wherein the transition metal is at least one type of metal selected from the group consisting of ~~iron (Fe), nickel (Ni), cobalt (Co), and~~ manganese (Mn), ~~copper (Cu), ruthenium (Ru), chromium (Cr), palladium (Pd), rhodium (Rh), and iridium (Ir).~~

35-37. (Canceled)

38. (Withdrawn) A manufacturing method for a carbon monoxide selective oxidizing catalyst according to claim 32, further comprising:

performing a reduction processing on the carbon monoxide selective oxidizing catalyst after the metal component has been supported on the carrier.

39. (Withdrawn) A manufacturing method for a carbon monoxide selective oxidizing catalyst according to claim 38, wherein the reduction processing is performed at a temperature higher than a temperature of the hydrogen-rich gas used for the carbon monoxide selective oxidizing reaction.

40. (Withdrawn) A manufacturing method for a carbon monoxide selective oxidizing catalyst according to claim 38, wherein the reduction processing is performed at 150 to 370°C.

41. (Currently Amended) A carbon monoxide selective oxidizing catalyst, comprising:

a carrier consisting essentially of ZSM-5; and

a metal component supported on the carrier and which includes ~~one of~~ ~~platinum (Pt) alone and~~ platinum (Pt) and at least one type of transition metal, wherein

when the carbon monoxide selective oxidizing catalyst receives a supply of a hydrogen-rich gas containing carbon monoxide, the carbon monoxide selective oxidizing catalyst promotes a carbon monoxide selective oxidizing reaction that oxidizes the carbon monoxide by giving the carbon monoxide priority over hydrogen; and wherein

the a maximum allowable pore diameter of the carrier is 0.54 nanometers (nm); and wherein the transition metal is at least one type of metal selected from the group consisting of cobalt (Co), manganese (Mn), chromium (Cr), and iridium (Ir).~~(nm).~~